



NOTES FROM THE DIRECTOR

No. 153

January 1984

NEW YEAR'S MESSAGE FROM THE DIRECTOR

It is a singular privilege to assume the responsibilities of Acting Director of the new Beltsville Area of ARS. This position represents a tremendous challenge and opportunity for creative and innovative service. I know that I can count upon your support and uninhibited feedback as we work together to meet the formidable challenges ahead.

Our major goal is to ensure that the Beltsville Area contributes effectively to the strategic objectives of ARS through a vigorous emphasis on high quality, basic and applied research. Currently, we are placing heavy emphasis on research that is basic to the biotechnologies. However, this does not mean that we will abandon all applied research. Indeed, the ARS Program Plan: 6-Year Implementation Plan, 1984-1990 states "In the judgment of ARS managers, mission oriented, fundamental research should account for about 50 percent of the ARS program between 1984 and 1990. Historical and current data for the ARS investment in fundamental research and analysis of the changes in program emphasis projected for the 6 years indicate that the investment in fundamental research will not vary from 50 percent by more than plus or minus 10 percent."

Moreover, as the National Program Staff progresses in shaping ARS national research programs around major agricultural problem statements, the concern over whether a project is largely basic or applied will tend to be replaced by the concern that the research is excellent and pertinent to important problems in agriculture and in agricultural science.

Many scientists at Beltsville have established an international reputation for excellence, and Dr. Finney, Mr. Rhodes, Dr. Purchase, and I intend to build upon this base to promote and advance the national goal of ARS.

There are more than 400 scientists in the Beltsville Area. We often are tempted to boast about our size. However, it is important to recognize that the research process is of a highly individualized nature. The creative genius of the individual mind is of paramount importance. Indeed, almost every small college in America has one or more scientist-scholars who are internationally recognized; conversely, even the most prestigious universities and world-renowned research centers (including Beltsville) have some scientists who have not been able to achieve international recognition. Thus, each individual, and the Beltsville scientific community as an institution of ARS, must continuously strive to enhance our contributions to science and agriculture. Status must be earned, and it must be earned continuously. Beltsville must be led to greater levels of achievement through the combined efforts of each employee in the Area. Traditionally, research scientists are expected to be creative self-starters. However, we cannot meet both our immediate and future challenges unless all employees display high initiative and creativity.

I wish to assure each of you that I am firmly committed to those ARS thrusts where we have the opportunity to gain recognition as being preeminent in the world. Programs will not fare well if they are perceived as being mediocre.

The Administrator's Council has been considering ways to strengthen ARS as an integrated entity and to reverse tendencies toward balkanization. Clearly we must further improve the outreach of Beltsville Area scientists within ARS, both as followers and as leaders on a "win-win" basis. This means greater emphasis on creative and mutually productive engagement with ARS scientists elsewhere.

We should avoid an attitude of competition with other ARS Areas. Rather we should compete with ourselves in an effort to surpass the achievements of our great predecessors who gave Beltsville the reputation of being the world's leading center for high quality agricultural research.

With regard to some immediate objectives, we hope to do the following:

(1) By April 30, 1984, present Drs. Tallent and Army a plan for basic research most likely to foster the discovery and development of agricultural biotechnologies. (2) Further improve conditions needed to induce truly outstanding scientists to remain with the Beltsville Area, or at least with ARS. (3) Recruit a few leading scientists who are already recognized as outstanding by the international scientific community. We can accomplish much with outstanding scientists even though all of our facilities may not be the best. (4) Increase overall productivity of Laboratories and Sections of the Division of Operations by 10 percent. This is equivalent to a \$5 million budget increase; and should result in greater peer recognition and sense of accomplishment. To accomplish this important objective, we will have to foster positive attitudes, strengthen commitment to the ARS mission, intensify motivation, accord appropriate esteem and recognition to productive employees and facilitate greater job satisfaction. (5) Attempt to recruit more post-doctoral research associates and, to the extent that is advisable and possible, provide them with 2-year tenures. (6) Encourage and facilitate sabbatical assignments elsewhere for permanent employees. (7) Recruit truly outstanding predoctoral graduate students into temporary positions in order to make them more aware of the advantages of competing for career assignments in ARS. (8) Develop policies that can lead to a more dynamic and exhilarating infrastructure in the Beltsville Area. We are concerned that a substantial number of people feel boxed in. (9) Develop a comprehensive Repair and Maintenance Plan for the Beltsville Area.

Salary increases in FY 1984 amount to \$1,119,800 for the Beltsville Area. We must find this sum on a recurring basis from our program resources. In addition, we must find \$323,653 to cover that part of the salary increase that we received in FY 1983 and for which additional funds were not appropriated. We will have to make adjustments or reductions in our research programs to accommodate this \$1,443,453 increase in salaries.

Finally, we need to continue to advance and foster the notion that it is our patriotic duty to be tolerant of diversity, to be sensitive to the needs, rights, and aspirations of minorities among us, and to actively foster

personal and professional development of all employees. The tens of thousands of dollars that we are paying to settle grievances are but a tiny fraction of the productivity that is lost as a result of discrimination or the appearance of discrimination. We cannot afford this demotivating drain on our resources and energy.

I am asking your full cooperation and support as we move ahead to address these challenges in 1984.

ANIMAL PARASITOLOGY RESTRUCTURED

As of January 1984, coincident with the retirement of Harry Herlich as Chairman, the Animal Parasitology Institute has been reorganized and now has the following structure:

Animal Parasitology Institute
Biosystematic Parasitology Laboratory
Helminthic Diseases Laboratory
Protozoan Diseases Laboratory

R. Fayer, Chairman
J. R. Lichtenfels, Chief
K. D. Murrell, Chief
M. D. Ruff, Chief

NEW LABORATORY CHIEF

Donald W. DeJong was recently named Chief, Tobacco Laboratory, PGGI. Dr. DeJong received a Ph. D. in plant histochemistry from the University of Georgia in 1965. He then received a 2-year NAS/USDA postdoctoral fellowship to work in the Plant Enzyme Pioneering Lab at the ARS Western Regional Research Center, Albany, California, and 11 years at the ARS Tobacco Research Laboratory, Oxford, North Carolina. He also was an adjunct professor at North Carolina State University. He left the Government in 1979 to join Advanced Harvesting Systems, an R&D operation of International Harvester Company, where he served for 2-1/2 years as staff scientist in plant biochemistry. His major research interests have been plant enzymology, plant cell culture, photosynthesis, postharvest technology of tobacco, and leaf protein fractionation. He has authored over 70 publications and two patents.

AWARDS

Cash Awards:

Aldrich, Jeffrey R., Insect Physiology Laboratory, PPI. (Discovery of first synthetic aggregation pheromone for a predatory insect and the first pheromone for an insect in the order Hemiptera.)

Baker, Con Jacyn, Plant Pathology Laboratory, PPI. (Patent on the control of bean rust by Bacillus subtilis and the potential savings for bean growers.)

Bemis, Robert K., Engineering & Planning Branch, Division of Operations.

(Providing more beneficial and tangible use of FY 83 Repair and Maintenance Program funding.)

Brocker, Mary A., Chairman's Office, API. (Sustained superior performance as Animal Parasitology Institute secretary.)

Gamble, H. Raymond, Nonruminant Parasitic Diseases Laboratory, API. (Superior achievement in the discovery and development, by hybridoma-monoclonal antibody procedures, of an antigen that provides the required specificity and sensitivity for immunodiagnosis of swine trichinosis.)

Grasse, Karla, Germplasm Resources Laboratory, PGGI. (Superior performance in the conduct of mutation breeding research in Cuphea.)

Grubb, Paul V., Engineering & Planning Branch, Division of Operations. (Sustained professional commitment and outstanding performance of project management duties.)

Murrell, Kenneth D., Nonruminant Parasitic Diseases Laboratory (NPDL), API. (Superior leadership of the NPDL and outstanding personal research accomplishments.)

Ostazeski, Stanley A., Field Crops Laboratory, PGGI. (Career contributions to the pathology of the anthracnose causing organism, Colletotrichum trifolii, on alfalfa, including: the development of screening techniques which led to the release of 'Arc' alfalfa, the first U.S. anthracnose resistant cultivar; coidentification of Race II of the anthracnose organism; and the discovery of an induced disease resistance system in alfalfa.)

Spriggs, Lawrence M., Poultry Parasitic Diseases Laboratory, API. (Personal initiative in coordinating and executing the complete relocation of two research projects into newly renovated facilities such that there was essentially no interruption of the research effort and no loss of productivity.)

Stavelly, J. Rennie, Plant Pathology Laboratory, PPI. (Initial invention award for the patent on the control of bean rust by Bacillus subtilis and the potential savings for bean growers.)

Toffon, Florence D., Office of the Director, Beltsville Area. (Superior performance of secretarial responsibilities in support of the Office of the Director.)

Quality Increases:

Wood, David L., Milk Secretion & Mastitis Laboratory, ASI. (Exceptional performance in analyzing lipids in cow and human milk and in analyzing body and udder temperatures in cows.)

Wray, Doris R., Field Crops Laboratory (FCL), PGGI. (In recognition of continued quality contributions to the clerical and administrative management of the FCL.)

Waldemar Klassen

WALDEMAR KLASSEN
Acting Director
Beltsville Area



NOTES FROM THE DIRECTOR

No. 154

February 1984

POULTRY ROAD CLOSED

A recent outbreak of avian influenza has been causing substantial losses to the poultry industry in Pennsylvania and nearby counties in adjoining States. There is concern that the disease organism can be transmitted by vehicles and people who travel through the contaminated areas.

To reduce the threat to the poultry flocks and research programs at Beltsville, a decision has been made to eliminate "through" traffic on Poultry Road. Employees are hereby notified that the gate at Odell and Poultry Roads on the Center will be closed until the threat of this disease has passed. Only those employees who work in the poultry area should use Poultry Road until further notice.

SCENT MOLECULES MAY CURB INSECT PEST

A courtship lure that the male tobacco budworm moth disperses into the air has been found to divert other males from the female of his affection. ARS scientists identified the lure in an ongoing search for natural chemicals that disrupt matings of insects and thereby reduce the population of the next generation.

Insects transmit mating messages via these scent molecules, called pheromones, and each pheromone elicits specific behavior, said Martin Jacobson, Chief, Biologically Active Natural Products Laboratory, AEQI. According to Jacobson, the pheromone produced by the male tobacco budworm is actually a trace constituent of the female's sex pheromone, her's being a mix of seven chemicals that she disperses to "call" a male.

However, the male produces one million times more of his pheromone than the female does, so he effectively jams her calling signal once he reaches her, Jacobson said.

Chemically speaking, the new pheromone is an aldehyde, (Z)-9-tetradecenal. It was identified by Jacobson and entomologist Victor E. Adler of Beltsville, and entomologist Alfred H. Baumhover of the ARS Tobacco Research Laboratory, Oxford, North Carolina. The tobacco budworm, Heliothis virescens, is a major pest of tobacco, cotton, and other crops.

Identification of the pheromone followed reports from ARS scientists based in Brownsville, Texas, that an unidentified pheromone of male tobacco budworm moths interfered with the courtship flight of competing males.

Jacobson said additional field tests are necessary to gauge the most effective concentration of synthetic pheromone for dispersal into the air to disrupt moth matings. Capsules must also be designed to withstand sunlight and weathering, yet dispense pheromone steadily for several weeks.

Jacobson said the new pheromone has the "potential to curb populations of tobacco budworms by reducing the number of matings." The female moth is fertile for only 3 to 4 days of her short lifetime. Also, the new pheromone should be of value to researchers studying how insects translate chemical codes into the nerve signals that bring about specific behavior. Such information could help scientists exploit vulnerable points in an insect's life cycle.

ARS FELLOWSHIP AWARDED TO VODKIN

Lila O. Vodkin, research geneticist, Seed Research Laboratory, PGGI, is the first Beltsville scientist to receive financial support for training and development under the new ARS Fellowship Program. Dr. Vodkin will be receiving training in immunocytochemistry with Dr. Palevitz in the Botany Department at the University of Georgia for about 3 weeks. Following that training, she will be spending some time at the Genetics Institute in Boston, conducting studies with Dr. Gerard Riedal on plant transformations.

The ARS Fellowship Program provides a limited number of opportunities to research scientists and administrative personnel to participate in a research or educational program at an educational or research facility of their choice.

NEW SCIENTIST

Michael W. Fleming recently has joined the Helminthic Diseases Laboratory at the Animal Parasitology Institute (API) as a research physiologist to examine the hormonal control of growth and development of parasitic nematodes as well as possible host-parasite endocrine interactions. Dr. Fleming obtained the B.S. degree from Fairfield University, Fairfield, Connecticut; an M.S. in Wildlife Biology from the University of Massachusetts, Amherst; and a Ph. D. in Zoology from Ohio State University, Columbus. Before joining API, he was awarded an NIH Postdoctoral Fellowship in Endocrinology in the Division of Animal and Veterinary Sciences, West Virginia University, and a Research Associateship, Department of Zoology, University of Maryland.

VISITING SCIENTIST

Oded Yarden, Department of Plant Pathology and Microbiology, Faculty of Agriculture, Hebrew University of Jerusalem, Rehovet, Israel, will spend 3 months in the Pesticide Degradation Laboratory, AEQI. He will be working with Donald Kaufman on pesticide degradation in problem and nonproblem soils.

OUTSIDE AWARDS

Gene J. Galletta, Fruit Laboratory, HSI, has been honored by the American Pomology Society with its Wilder Silver Medal. This is the highest honor of the Society. Dr. Galletta is well-known for his research on strawberry breeding and development.

Walter A. Gentner, Chief, Weed Science Laboratory, AEQI, was recently honored by the Weed Science Society of America (WSSA), by being designated as a Fellow

In December, Dr. Lunney gave a seminar at the Eastern Regional Research Center in Wyndmoor on "Production and Uses of Monoclonal Antibodies." She also talked with scientists there about the biochemistry of bovine and swine B₂-microglobulin.

Recently, Gideon W. Schaeffer was invited to present a paper on the recovery of useful genotypes from anther culture and in vitro selection of rice cells resistant to analogs of lysine. Additionally, he served as a panelist for a TV discussion on "Genetics in the 21st Century." Other panelists included Dr. G. M. Reddy (geneticist and organizer of the symposium), Dr. E. Sears (USDA cytogeneticist, retired), and Dr. J. Peacock (Australian molecular geneticist). The paper and the TV presentation were part of a satellite symposium on "Gene Structure and Function" at Osmania University, Hyderabad, India, and was cosponsored by the International Genetics Congress held at New Delhi, December 11-22, 1983.

Jack R. Coulson, Chief, Beneficial Insect Introduction Laboratory (BIIL), took part in the program review of the European Parasite Laboratory (Sevres, France) and Biological Control of Weeds Laboratory (Rome, Italy) at Bougival, France, November 14-18, 1983. This was the first review ever for these two European ARS biological control laboratories, which were established in 1919 and 1959, respectively. Mr. Coulson also attended the 10th International Plant Protection Congress in Brighton, England, November 20-25, and visited Commonwealth Agricultural Bureaux (CAB) offices in London and Ascot, for discussions of documentation activities in relation to those of the ARS Biological Control Documentation Center at BIIL.

Robert F. W. Schroder, research entomologist, Beneficial Insect Introduction Laboratory, received Pilot Test Funds to study "The Integration of *Edovum puttleri* into Potato, Tomato and Eggplant Pest Management Programs for Colorado Potato Beetle Control." Study is proposed for 3 years with funding for 1984 amounting to \$114,122. Cooperators are Dr. James Lashomb, Department of Entomology, Rutgers University, and Dr. Dan Sherrod, Virginia Truck and Ornamentals Research Station, Painter, Virginia.

Dora K. Hayes, Chief, Livestock Insects Laboratory (LIL), AEQI, has been elected Secretary-Treasurer of the International Society for Chronobiology (Biological Rhythms). This organization has as its aims the furthering of studies on temporal parameters of biologic variation (chronobiologic variation) and to pursue related scientific and educational purposes, furthering of contacts among scientists working in this field, and development and recognition of centers of chronobiologic excellence.

Dr. Hayes and coworkers in the LIL have applied the concepts of chronobiology to studies which have been or can be statistically validated concerning the effects of photoperiod manipulation on biochemistry and physiology (particularly of the nervous system) and on behavior during insect development or insect diapause (hibernation). They have also studied the relationship of timing of treatment to the efficacy of insecticides and other synthetic and naturally occurring substances including how neuroactive compounds affect insect growth and development.

of the Society. Dr. Gentner was recognized for his international contributions to the control of narcotic plants and the evaluation of chemicals for herbicidal properties.

A special ceremony was held at the Animal Parasitology Institute (API) on January 25, to present the American Red Cross Certificate of Merit to Awdry W. Jones. This is the highest award given by the Red Cross. Mr. Jones, a laboratory technician at API, was visiting a home in Bowie when he observed a friend begin to choke on a piece of food. Rushing to the victim, he carried out a series of first-aid maneuvers to clear the obstructed airway and breathing was restored. Without doubt, his use of the "Heimlich Maneuver" saved the life of a friend. The award was presented to Mr. Jones by Congressman Steny Hoyer and representatives of the American Red Cross.

Richard L. Ridgway, Chief, Organic Chemical Synthesis Laboratory, AEQI, recently received the Outstanding Entomologist Award in Pest Management from the American Registry of Professional Entomologists. Dr. Ridgway served as the ARS National Program Leader for Cotton and Tobacco Insect Control for many years before joining AEQI in 1983.

Scott R. Shaw, biological laboratory technician in the Systematic Entomology Laboratory (SEL), IIBIII, won the 1983 Snodgrass Memorial Research Award presented by the Entomological Society of America at its Annual Meeting in December. Mr. Shaw, who provides technical support for the SEL Laboratory Chief, Paul M. Marsh, is a Ph. D. candidate in the Maryland Center for Systematic Entomology, University of Maryland. The Snodgrass Award is presented annually to an outstanding graduate student in insect systematics and morphology. Mr. Shaw was also the first recipient of the Gahan Memorial Award from the Department of Entomology at the University of Maryland.

John R. Teasdale, Weed Science Laboratory, AEQI, was given the Best Paper Award at the recent meeting of the Northeastern Weed Science Society. There have been several previous winners from Beltsville, but Dr. Teasdale is the first from here in quite a few years.

Raymon E. Webb, Chief, Vegetable Laboratory, HSI, recently received THE GROWER'S Excellence in Research Award for his contributions to the potato industry. The publishers of the THE GROWER noted that Dr. Webb's contributions to the vegetable industry are being felt throughout the Nation. Webb also received the USDA Superior Service Award in May 1983.

EMPLOYEE ACTIVITIES

Joan Lunney, Helminthic Diseases Laboratory, API, visited the ARS Plum Island Animal Disease Center on February 6 to give an invited seminar on "Genetic and Cellular Control of Immune Responses in Swine." She spent the day talking to members of the African Swine Fever Virus research group about their research. The potential importance of the major histocompatibility complex genes in the swine's response to this virus and to foot-and-mouth disease virus was also discussed.

IN-HOUSE AWARDS

Cash Awards:

Avery, Crawford Lee, Poultry Unit, Animal Operations. (Special Achievement Award for significant contributions to the total research effort in the Nonruminant Nutrition Laboratory, ASI.)

Brocht, Roy L., Farm Management Branch (FMB), Division of Operations. (Outstanding performance of assigned duties in the Research Plots Section of the FMB, BARC.)

Engelhaupt, Mary Ellen, Tobacco Laboratory, PGGI. (Continued superior performance and initiative in the operation of the laboratory and research on the biochemistry of tobacco.)

Kimmell, Roy C., Maintenance and Construction Branch, Division of Operations. (High quality research equipment service to the Plant Stress Laboratory, PPHI. (The award was recommended by the PPHI Chairman.))

Rogers, Charles W., Farm Management Branch (FMB), Division of Operations. (Outstanding performance of assigned duties in the Research Plots Section of the FMB, BARC.)

Stephens, Sylvia B., Tobacco Laboratory (TL), PGGI. (Providing outstanding clerical assistance to the 37th Tobacco Chemists' Research Conference while maintaining a high level of performance in the TL.)

Travers, Russell S., Insect Pathology Laboratory, PPI. (Particular resourcefulness and dedication in the development of methods and/or equipment to solve intractable research problems under constraints of time and budget.)

Westfall, W. Marie, Weed Science Laboratory, AEQI. (Sustained superior performance of duties as secretary to the National Technical Advisor-Narcotics.)

Quality Increases:

Amerault, James B., Vegetable Laboratory, HSI. (Providing technical assistance to tomato breeding and pathology research programs at a high level of competence and at a level of performance substantially exceeding the acceptable level.)

Matthews, Viola A., Organic Chemical Synthesis Laboratory (OCSL), AEQI. (Sustained exemplary and meticulous performance in providing support for the scientific program of the OCSL.)

SAFETY TIP - Getting Belted (A. Blasco)

The National Safety Council reports that less than 25 percent of the Nation's drivers wear seat belts. This is a dramatic statistic, particularly because it has been conservatively estimated that of the 50,000 Americans who are killed each year on the highways, at least half of them would have been saved had they worn seat belts. By wearing a seat belt, you set a good example for your children and other loved ones. Don't sit on it--wear it! Seat belts save lives!

Waldemar Klassen

WALDEMAR KLASSEN
Acting Director, Beltsville Area



NOTES FROM THE DIRECTOR

No. 155

March 1984

PRESIDENT SALUTES SCIENCE

President Reagan hosted a group of farm families at the White House on March 20, 1984, in recognition of National Agriculture Day. During his speech, the President paid tribute to the role of science and technology in contributing to the tremendous growth in agricultural productivity over the past 50 years. The President said, "You know the exhilaration of opportunity and the accomplishments of agricultural research. We now have many disease resistant crops and stronger livestock; and we are on the threshold of even greater scientific and technological breakthroughs. The work being done at places like USDA's Beltsville Agricultural Research Center is bringing exciting new advances."

EDMINSTER AWARDS PRESENTED

Terry B. Kinney, Jr., Administrator of ARS, presented the T. W. Edminster Research Associate Awards for 1983 during a ceremony at Beltsville on March 2, 1984. Lowell Owens, Tissue Culture and Molecular Genetics Laboratory, PPHI, received one of the awards for submitting the outstanding Research Associate Proposal in 1983. The scientist hired to work with Barbara Suzanne Mischke, also received an award which includes a plaque bearing the likeness of Mr. Edminster, the former Administrator of ARS.

Dr. Mischke received a Ph.D. in plant genetics from the University of Arizona. She served in a postdoctoral appointment in 1981-82 at the University of California at Davis, working with Dr. Tsume Kosuge on crown gall research. She was part of a team that established a correlation between levels of auxin and cytokinen in tumors and tumor morphology.

At Beltsville, Dr. Mischke is working with Dr. Owens on electrofusion for gene transfer in plant cells.

MEMBRANE RESEARCH SYMPOSIUM

The Ninth Annual Beltsville Symposia in Agricultural Research will be held on May 20-24, 1984 in the auditorium. The title of this symposium is Frontiers of Membrane Research in Agriculture. Meryl N. Christiansen, Chairman of the Plant Physiology Institute, is the general chairman of the symposium. Attendance will be limited to 500 registrants on a first-come basis. ARS employees who wish to attend should complete their registration no later than May 1, 1984. There is a registration fee for all registrants this year, including employees at Beltsville.

RESEARCH ASSOCIATE PROJECTS SELECTED

Terry B. Kinney, Jr., ARS Administrator, has announced the selection of Research Associate Proposals for 1984. Five proposals from scientists at Beltsville were selected for funding:

Genome modification by microinjection of recombinant DNA into livestock embryos. V. G. Pursel, Reproduction Laboratory, ASI.

Interspecific transfer of chloroplasts and mitochondria. B. F. Matthews, Tissue Culture and Molecular Genetics Laboratory, PPHI.

Investigations of the role of the plasma membrane in the stress-induced responses of cell cultures derived from cereals of differing tolerances to environmental stress and their genetic variants. C. R. Caldwell, Plant Stress Laboratory, PPHI.

Development of DNA transfer system for determining genetic regulation of spiroplasma host range and pathogenicity. R. E. Davis, Plant Virology Laboratory, PPI.

Bioregulation of specific gene expression. G. R. Chandra, Seed Research Laboratory, PGGI.

Dr. Kinney will provide funding for the support of an ARS Research Associate for each of these projects in 1984. Special authority has been received to hire highly qualified candidates without the delays normally associated with the employment of scientists on a temporary basis.

OSTP OFFICIAL VISITS LABORATORIES

Gordon Wallace, Senior Policy Advisor in the White House Office of Science and Technology Policy (OSTP), has scheduled visits with ARS scientists at Beltsville to become familiar with selected research programs within ARS. On March 2, Dr. Wallace spent two hours visiting with Freddi A. Hammerschlag, Plant Physiologist, Tissue Culture and Molecular Genetics Laboratory, PPHI. Dr. Hammerschlag presented a detailed briefing on peach tissue culture research and basic studies being conducted in the area of host-pathogen interaction.

Dr. Wallace also visited with Patsy Rhodes, ARS Research Associate in the Seed Research Laboratory, PGGI. He was especially interested in the basic research being conducted on the mapping of those genes responsible for the expression of lectins in soybeans. Dr. Wallace inquired about the availability of advanced scientific instrumentation such as flow cytometers and DNA sequencers. He was also interested in the kinds of postdoctoral programs available to attract young researchers.

FAMILY ECONOMICS RESEARCH GROUP

The Family Economics Research Group (FERG) now part of the newly established Beltsville Area is located in Hyattsville, Maryland. This group was part of the Consumer and Food Economics Institute until 1979. When CFEI became a separate agency (HNIS), the Family Economics Research Group remained with ARS.

FERG has a dual mission of research and service. It's objective is to study the production, consumption, and management activities of families that contribute to the maintenance and improvement of economic well-being. Current research work includes four projects: (1) The development of estimates of the cost of raising a child. (2) The analysis of family financial planning practices over the life cycle and under changing social and economic conditions. (3) The identification of economic contributions of farm family members to the household and farm unit. (4) Resources used by household in the consumption of clothing and textiles.

As part of its service work, the group publishes Family Economics Review (FER)--a quarterly report on research results and on national outlook and trend information related to family economic issues. FER is aimed primarily at Extension programs in family resource management.

Katherine S. Tippet is the Research Leader for this important ARS program.

NEW SCIENTISTS

Virgil W. Smail, Research Scientist, recently joined the Field Crops Laboratory, PGGI, where he will be working on genetics and breeding of wheat and barley for the Eastern U.S. Initially, emphasis will be on developing screening and physiological assay techniques applicable to tissue culture. Dr. Smail was born in South Dakota, received his B.S. in biology from Earlham College in Indiana, and his M.S. and Ph.D. from Montana State University. His Ph.D. Thesis was on genetic factors controlling yield adaptation and stress resistance in barley. Following receipt of his Ph.D., Dr. Smail was on assignment in Egypt as wheat and barley coordinator for the Egyptian Major Cereal Improvement Project/AID from 1981-83. Most recently he served as Microsoft Statistics (MSTAT) Coordinator, Crops and Soils Department, Michigan State University.

Anthony Capuco recently joined the staff of the Milk Secretion and Mastitis Laboratory, ASI. Dr. Capuco comes to us from the staff of St. Bonaventure University. Prior to that time, he worked as a postdoctoral fellow at the University of Louisville Medical School and at Michigan State University. Dr. Capuco received his Ph.D. in Physiology from Cornell University. His research at Beltsville involves the role of endocrine factors in the regulation of lactation.

BLOSSER RECEIVES DHIA AWARD

Tim Blosser of the Ruminant Nutrition Laboratory, ASI, was awarded the 1984 National Dairy Herd Improvement Association (DHIA) Outstanding Service Award at the Annual Meeting of that group in Minneapolis, Minnesota, on March 15. This is a National Award presented to one or two individuals annually for service to the dairy industry.

FAUST HONORED BY HORTICULTURISTS

Miklos Faust, Chief of the Fruit Laboratory, HSI, recently received a very unique honor from his peers in the American Society for Horticultural Science. The fifth volume of Horticultural Reviews was dedicated to Dr. Faust for his contributions to fruit research and to world horticulture. Dr. Faust has the distinction of being the only active research scientist to receive this honor. Previous dedications have been to outstanding scientists following their retirement. Among those who were previously honored in this manner are John R. Magness, formerly a fruit breeder from Beltsville, and Liberty Hyde Bailey, a giant of horticulture at Cornell University near the turn of the century.

BONSAI MASTERPIECE DONATED TO ARBORETUM

The U.S. National Arboretum is the beneficiary of a major donation to the National Bonsai Foundation. At a reception at the Arboretum on March 7, John Yoshio Naka, one of the most famous bonsai artists and teachers in the world, donated his renowned masterpiece bonsai "Goshin" to the National Bonsai Foundation. It will be a major feature of the proposed American Bonsai Collection to be developed at the Arboretum.

Mr. Naka created the world famous bonsai "Goshin" in 1964 as a seven tree forest style. The oldest and largest tree in the group was trained in 1954. The bonsai is made up of eleven trees of varied ages.

EMPLOYEE ACTIVITIES

Dr. James L. Vaughn, Chief of the Insect Pathology Laboratory, was recently elected to a 2-year term as President of the National Capital Area Branch of the Tissue Culture Association. Dr. Edward M. Dougherty, also of the Insect Pathology Laboratory, was elected Treasurer for the 1984-86 term. The National Capital Area Branch actively represents some 380 members mostly from Virginia, Maryland, D. C. and West Virginia. It is the largest of the local branches of the Tissue Culture Association. The Branch sponsors two 1-day scientific meetings each year, a 2-week course in basic cell culture methods as well as smaller weekend workshops in conjunction with nearby universities.

MARYLAND RESEARCH ASSOCIATE COLLABORATES WITH ASI

Emmanuel Ojo-Amaize, a postdoctoral research associate at the University of Maryland, has begun a cooperative research effort in the Milk Secretion and Mastitis Laboratory, ASI, working with Dr. A. J. Guidry. This research effort is to determine the antigenicity of various cellular components of Staph. aureus. Initial work will employ the mouse as a model; subsequently, efforts will be directed to the bovine in an effort to develop immunity to mastitis organisms in the mammary gland. Dr. Ojo-Amaize received his Ph.D. in cellular immunology from the University of Uppsala in Sweden. Subsequently, he was a postdoctoral fellow at the New York University Medical School.

AWARDS

Cash Awards:

Hummel, Keith A., Farm Management Branch (FMB), Division of Operations. (Outstanding performance of assigned duties in the Roads & Grounds Section of the FMB.)

Kelley, Emory O., US Plant Introduction Station, Glenn Dale, PGGI. (Making a continued and conscientious effort (both on and off duty) to establish and maintain the operation of the US Plant Introduction Station at Glenn Dale.)

McCall, Charlie, Farm Management Branch (FMB), Division of Operations. (Outstanding performance of assigned duties in the Roads & Grounds Section of the FMB.)

McGrath, Hilde M., Pesticide Impact Assessment Staff, AEQI. (Dedicated and outstanding performance in support of the Program Committee and to the editing of the Proceedings of BARC Symposium VIII, "Agricultural Chemicals of the Future.")

Pea, Roy N., Germplasm Resources Laboratory, PGGI. (Employee suggested and carried out trying to grow certain rice accessions in the rice collection in a field plot located near the greenhouse. The test was a complete success.)

Povish, William, US Plant Introduction Station, Glenn Dale, PGGI. (Making a superior effort in maintaining and improving the Pome fruit indexing program and taking exceptional personal interest in improving and ensuring the success of the plant quarantine program.)

Price, Claude, US Plant Introduction Station, Glenn Dale, PGGI. (Making a continued and conscientious effort to maintain the security and safety of the facilities and of the plant germplasm housed in the facilities of the US Plant Introduction Station at Glenn Dale.)

Quality Increases:

Brandt, Ethel P., Insect Reproduction Laboratory, AEQI. (Ethel Brandt is a superb support scientist who performs her job at a level beyond excellence, reliability, diligence, loyalty and care.)

Fittro, Joan E., Vegetable Laboratory, HSI. (For sustained excellence in her ability to assume responsibility and perform all of her major duties well above the acceptable level.)

Keller, Arlene G., Hydrology Laboratory, PPI. (For continuous high quality clerical support to the Hydrology Laboratory.)

Morgan, Bonnie E., Nonruminant Animal Nutrition Laboratory, ASI. (For consistently exceeding job requirements in editing, organizing and processing swine breeding research data for the preparation of annual reports and for expediting the statistical and genetic analysis of the data.)

Pringle, Malachi, Germplasm Resources Laboratory, PGGI. (For sustained high performance.)

White, Geoffrey L., Vegetable Laboratory, HSI. (In recognition of continued quality contributions to the entomological research of the Vegetable Laboratory.)

Wilzer, Kenneth R., Insect Physiology Laboratory, PPI. (For assuming additional responsibilities and for continued highly competent and dependable performance during a transitional period of updating analytical instruments for the Laboratory.)

DISTINGUISHED VISITORS

Mr. Patrick Hegarty, Minister of State for Agriculture in Ireland, visited Beltsville on March 24, 1984. He was accompanied by his private secretary Mr. John Murphy.

Dr. Klassen gave Mr. Hegarty a briefing on the research programs at Beltsville and gave him a tour of the Center. Mr. Hegarty was a guest of Secretary Block and Dr. Bentley.

Mr. Cesear Guvera, Vice Minister of Agriculture, Venezuela, visited Beltsville on March 8, 1984. Essex Finney gave him a briefing on the structure of the agricultural research system in the United States.

Waldemar Klassen

WALDEMAR KLASSEN
Acting Director
Beltsville Area



NOTES FROM THE DIRECTOR

No. 156

May 1984

SECRETARY BLOCK BRINGS STAFF TO BELTSVILLE

Secretary John R. Block, Deputy Secretary Richard E. Lyng, and the entire contingent of Assistant Secretaries within USDA held their staff meeting at Beltsville on May 16, 1984. While at Beltsville, Secretary Block and John Toll, President of the University of Maryland, signed an agreement to strengthen cooperation between USDA and the University in areas relating to agricultural biotechnology.

Following the staff meeting, Terry B. Kinney, Jr., the ARS Administrator, gave the Secretary and his staff a briefing on current programs and thrust areas within ARS. The Secretary then visited a number of ARS projects at Beltsville, including work on tissue culture of peaches and apples, anther culture for improvement of cereals, insertion of growth hormone gene into swine ova, separation of x-chromosome from y-chromosome bearing sperm to control the sex ratio of livestock offspring, rapid nondestructive measurement of fat content, and new techniques for degrading pesticide wastes.

Dr. Kinney indicates that he has received very positive feedback on the Secretary's visit to Beltsville. He has asked me to convey his appreciation to all for the superb job everyone did in preparing for this visit. It was indeed a rare opportunity for ARS to communicate examples of the excellent research in the Agency to such high level policy officials within the Department.

KELLY, HONORED BY WASHINGTON ACADEMY

Thomas J. Kelly, Research Physiologist, Insect Reproduction Laboratory, AEQI, was selected by the Washington Academy of Sciences to receive the Scientific Achievement Award for his contributions to innovative research in endocrinology and hormonal mode of action in insects. This particular award is one of the oldest and most prestigious of the local awards for young scientists in the Washington area. The awardees were honored during a special dinner at the American University on March 28, 1984.

MEMBRANE SCIENTISTS MEET

Over 300 of the world's leading scientists in research on biological membranes met at Beltsville on May 20-24 to discuss the latest advances in this important area of science. "Frontiers in Membrane Research in Agriculture" was the theme for the 1984 Beltsville Symposium in Agricultural Research. Terry B. Kinney, Jr., the ARS Administrator, gave the opening speech for the Symposium and highlighted the role of basic research in agriculture.

Meryl Christiansen, General Chairman of the Symposium, noted that scientists are finding that membranes could hold the key to solving many basic problems in medicine, nutrition, and agriculture. Fluid, film-like membranes, a mere molecule or two thick, control the essential chemistry and physics of every living cell and thus enable organisms to move, eat, think, speak and reproduce. Biomembranes are important not only because they organize microenvironments of cells and cell parts, but they are also Nature's cellular gatekeepers, commanding precise transport of solutions among cells.

The Symposium provided an opportunity for the leading scientists to share information on ways to combine knowledge of membranes with the latest advances in genetic engineering and the other tools of biotechnology.

TRICHODERMA AND GLIOCLADIUM WORKSHOP

The first International Workshop on Trichoderma and Gliocladium was held April 3-5 at Beltsville. The workshop, sponsored by the Soilborne Diseases Laboratory, PPI, was attended by 55 scientists representing nine countries. Representatives from 11 companies and the Environmental Protection Agency also attended the workshop. The meeting was devoted to discussions on biosystematics, new techniques to study the two antagonists of pathogens, population dynamics in soil and in the plant rhizosphere, new concepts for establishment and proliferation in soil, interaction with biocides, physiology, strain improvement, mechanisms of biological control, production and delivery systems, marketing biocontrol products, registration of biocontrol agents in Europe and the United States, and examples of biological control. A steering committee was established which will coordinate the second workshop to be held in France in 1987.

NEW ADVANCE IN PARASITOLOGY

The first in vitro development of the major sheep parasitic worm, Haemonchus contortus, to the egg-laying adult stage was achieved in April, 1984, by Frank Stringfellow of the Biosystematics Laboratory, API. This parasite is a great obstacle to the development of the sheep industry in the southeastern United States, where in the past it was referred to as the "bankrupt worm" because of the losses it caused among farmers attempting to start sheep operations in that region. Elsewhere, both in the United States and around the world, this parasite is a large economic burden. Development of effective controls for the disease "haemonchosis" has been hindered by the lack of fundamental knowledge of the parasite's biochemistry, immunochemistry and physiology. The ability to grow in vitro H. contortus through its various developmental stages is the breakthrough that will open up the opportunities to study these aspects of its biology. Dr. Stringfellow's creative effort to exploit the partial benefits of earlier media formulations and to significantly modify the media with particular host-derived components resulted in this important achievement. It is expected that industry will express great interest in this accomplishment.

NEW SCIENTIST

Deborah R. Fravel, Research Plant Pathologist, recently joined the Soilborne Diseases Laboratory, PPI, where she will be working on biological control of soilborne plant pathogens. Initially, she will give emphasis to studies on the biochemical/physiological basis of antagonism at the rhizosphere level and develop rhizosphere technology to enhance colonization and specific biocontrol activities against soilborne plant pathogens at the root-soil interfaces. Dr. Fravel received her Ph. D. degree from North Carolina State University. Following receipt of her Ph. D., Dr. Fravel was on a postdoctoral assignment at the Soilborne Diseases Laboratory where she worked on the biological control of Verticillium wilts.

VISITING SCIENTISTS

Donald Oberleas, Professor in the Department of Nutrition and Food Sciences, University of Kentucky is working with Eugene Morris and James Smith, Jr. of the Vitamins and Mineral Nutrition Laboratory to further define the effect of phytate on endogenously secreted zinc. Dr. Oberleas has been interested in trace element availability and metabolism for over 20 years. He has contributed significantly to the understanding of the effect of phytate on zinc homeostasis including the concept of utilizing phytate:zinc molar ratio in estimating the relative risk of zinc deficiency in animals and man. He has studied the effect of zinc deficiency on the activity of several zinc dependent enzymes including the determination that thymidine kinase was the enzyme most sensitive to zinc depletion. He pioneered studies on the effect of trace element deficiencies on behavior and learning. Administratively, Dr. Oberleas has served as Acting Associate Chief of Staff for Research at the Allen Park Michigan VA Hospital for two years and was Chairman, Department of Nutrition and Food Science, University of Kentucky for seven years through June 1983.

Mary Frances Picciano, Associate Professor in the Department of Foods and Nutrition and the Division of Nutritional Sciences of the University of Illinois at Urbana is working with Eugene Morris and Claude Veillon of the Vitamin and Mineral Nutrition Laboratory on the development of a stable isotope technique to be used to monitor the metabolism of iron. Dr. Picciano's primary research focus is nutrition during lactation and infancy. Specific research activities include investigations of trace mineral and folacin metabolism. Bioavailability of selected nutrients from various milks and other infant foods is another current area of investigation. She is a member of numerous professional organizations and serves as President of the Illinois Nutrition Association, Scientific Advisor to the American Council on Science and Health and a member of the Annual Meeting Committee of the American Society for Clinical Nutrition. She is an internationally recognized expert on the standardization of methodologies in human lactation studies.

EMPLOYEE ACTIVITIES

The bibliography of Helene N. Guttman, Associate Director, BHNRC, has been selected for listing in the British publication entitled "Foremost Women of the Twentieth Century".

C. E. Bodwell, Chief, Protein Nutrition Laboratory, BHNRC, gave an invited presentation entitled "Protein Sources and Mineral Utilization in Humans" on May 3, 1984, at the Symposium on Protein-Mineral Interaction: Functionality and Bioavailability in Dallas, Texas.

Walter Mertz, Director, BHNRC, was invited to present a plenary paper on World Needs in Trace Element Research at the Third International Symposium on Selenium in Biology and Medicine (May 28-June 1, 1984) in Beijing, The People's Republic of China.

Norberta W. Schoene, Lipid Nutrition Laboratory, BHNRC, was an invited special session speaker at the George Washington University Biochemistry Department Spring Symposium entitled Prostaglandins and 'Leucotrienes' 84. Her presentation was entitled Effects of Selenium Deficiency on Arachidonic Acid Metabolism and Aggregation in Rat Platelets.

Mary Marshall of the Lipid Nutrition Laboratory, BHNRC, gave an invited research presentation entitled Effects of Biotin and Fat Type on Blood Lipids, Red Cell and Liver Fatty Acids of Rats at the International Conference on Biotin sponsored by the N. Y. Academy of Sciences, May 2-4, 1984.

Orville A. Levander of the Vitamin and Mineral Nutrition Laboratory, BHNRC was invited to visit the University of Helsinki, Helsinki, Finland (a) to lecture on the role of selenium and Vitamin E on Biosynthesis of Prostaglandins at the Symposium on Prostaglandin Nutrition and Health and (b) to give an invited seminar to the Department of Food Chemistry and Technology on Assessment of Selenium Status.

Alexej B. Borkovec, Chief, Insect Reproduction Laboratory, AEQI, presented three invitational lectures at the Osmania University, Hyderabad; Regional Research Laboratory, Hyderabad; and the University of Rajasthan, Jaipur, India. Dr. Borkovec was in India to review special foreign currency cooperative projects between Indian laboratories and the Insect Reproduction Laboratory.

An Olympic Scientific Congress, to be held July 19-26 in Eugene, Oregon, will be the first official event of the Summer 1984 Olympiad. Participants from over 130 countries will present scientific papers related to the theme Sports, Health and Well Being.

USDA Secretary John R. Block will give a keynote speech on the Health and Fitness Revolution and the Assistant Secretary for Science and Education will represent USDA at the opening ceremonies. Two Beltsville Area scientists will make scientific presentations: Richard Anderson, VMNL, BHNRC will present a research paper entitled "Strenuous Exercise May Increase Dietary Needs for Chromium and Zinc" and Helene N. Guttman, Associate Director, BHNRC will be one of six participants in an international panel organized to discuss the question: "Can athletic performance be improved with nutritional supplementation?".

George C. Papavizas, Chief, Soilborne Diseases Laboratory, PPI, presented an invitation seminar on March 5, 1984 to the faculty and students, Department of Plant Pathology, University of California, Riverside. Dr. Papavizas' presentation was on "Soilborne diseases: New opportunities for biological control." He also visited with several faculty members and had a question-answer period with graduate students.

George C. Papavizas was invited by the Research Division, W. R. Grace & Co., Columbia, Maryland, to discuss the work of the Soilborne Diseases Laboratory on biological control with scientists of the company. The Research Division of W. R. Grace is planning to initiate research on biological control of pests. Dr. Papavizas presented a lecture to the company staff on May 15 entitled "The importance of soilborne diseases and innovative approaches of control".

Two students working with Roger Ratcliffe of the Field Crops Laboratory, PGGI, received honors in the Washington D. C. High School Science Fair held on March 24, 1984. Vernon Holmes of Washington, D. C., a senior at Gonzaga, and Nikolai Mulligan of Arlington, Virginia, a freshman, placed first and second, respectively, in the Zoology category in competition with approximately 20 other D. C. high school students. Vernon and Nikolai have been involved in research projects at Beltsville as part of a work-study program in Entomology with Dr. Ratcliffe. Both students conducted research on the interaction of plant resistance and aphid biotypes; Vernon, with the pea aphid on alfalfa and Nikolai, with the greenbug on Kentucky bluegrass. This was Vernon's third year of competition in the D. C. Science Fair and Nikolai's first.

AWARDS

Cash Awards:

Gilligan, Ellen V., Protozan Diseases Laboratory (PDL), API. (For continued inovative efforts in conceiving, initiating, and performing a variety of intra- and extra-laboratory activities and duties that have markedly enhanced productivity of Lab.).

Jacobs, Wendy L., Lipid Nutrition Laboratory (LNL), BHNRC. (Performed in an outstanding manner the duties as Laboratory secretary, while maintaining regular duties.)

Kochansky, Jan P., Insect Physiology Laboratory (IPL), PPI. (For discovery of new safe and economical carbamates and thiocarbamates with high potential for controlling scabies mites and other animal parasitic mites.)

Mobley, Ralph, U.S. National Arboretum. (Sustained superior performance for duties performed outside of the description of duties.)

Murphy, William L., Institute Office, IIBIII. (For superior service in initiating, coordinating, and managing the distribution of published scientific research results on the insect order Homoptera to the entomological community worldwide.)

Norman, H. Duane, Animal Improvements Program Laboratory (AIPL), ASI. (For maintaining an outstanding rate of research productivity on genetic improvement of dairy cattle, including producing written reports, conducting joint research with outside cooperators, and advising cooperative organizations in the National Cooperative Dairy Herd Improvement Program.)

Parker, Eileen O., Pesticide Degradation Laboratory (PDL), AEQI. (For continuous outstanding secretarial support in the PDL during the 2-year period 1981-1983.)

Pritchard, Robert F., U.S. National Arboretum. (Sustained superior performance for duties performed outside of the description of duties.)

Polansky, Marilyn M., Vitamin & Mineral Nutrition Laboratory, BHNRC. (For performing a critical role in the completion of two major studies demonstrating the importance of chromium in human nutrition.)

Shaw, Scott, R., Systematic Entomology Laboratory (SEL), IIBIII. (For exceptional performance in providing authoritative identifications of parasitic wasps in the Laboratory Chief's service assignment in support of Federal and State biological control programs.)

Walter, G. W. L., Vegetable Laboratory, HSI. (For sustained superior performance in coordinating BARC services with Laboratory personnel and development of resistance evaluations in potato and other vegetables.)

Whitehead, Andrew C., Farm Management Branch (FMB), DO. (Outstanding performance of assigned duties in the Research Plots Section on the FMB.)

Quality Increases:

Adams, Patricia A., Florist and Nursery Crops Laboratory (FNCL), HSI. (For superior performance in the conduct of secretarial duties and administrative support of the Laboratory.)

Finney, Marie M., Fruit Lab (FL), HSI. (For dedicated work leading to understanding cane canker disease of blackberries and discovery of a new strain of bacteria in apples.)

Lysinger, Patricia A., Plant Virology Laboratory (PVL), PPI. (For highly competent and dependable performance of assigned duties in the PVL, PPI.)

Mock, Raymond G., Plant Pathology Laboratory (PPL), PPI. (For superior performance of duties involved with the sugarcane quarantine program and with the sugarcane pathology research project.)

Neuenhahn, Linda M., Reproduction Laboratory (RL), ASI. (For outstanding performance of duties as Secretary of the RL.)

Powell, Anne M., Reproduction Laboratory (RL), ASI. (For outstanding performance in the collection and biochemical analysis of animal tissue samples while serving as a Biological Laboratory Technician in the RL).

Rao, David D., Lipid Nutrition Laboratory (LNL), BHNRC. (For outstanding performance in investigations of diet and endocrine interrelationships by RIA techniques.)

Tate, Charles J., Soilborne Diseases Laboratory (SDL), PPI. (For outstanding performance of duties leading to increased understanding of biological control of plant diseases caused by Sclerotinia species by the mycoparasite Sporidesmium.)

Walton, Leigh M., Animal Improvement Programs Laboratory (AIPL), ASI. (For sustained superior performance as a supervisor and leader of the computer operations section in devising and implementing innovative, cost-effective procedures for the execution of large-scale computing projects in support of the genetic research program at the AIPL.)

Woltz, Sharon A., Ruminant Parasitic Diseases Laboratory (RPDL), API. (For outstanding performance as secretary to the RPDL and in assisting in the transition associated with consolidation of that Laboratory with the Nonruminant Parasitic Diseases Laboratory.)

Waldemar Klassen

WALDEMAR KLASSEN
Acting Director
Beltsville Area



NOTES FROM THE DIRECTOR

No. 157

July 1984

NEW SECRETARY TO THE DIRECTOR

I am pleased to introduce Terry Stephens, the new secretary to the Director of the Beltsville Area. Ms. Stephens comes to us from the U. S. Census Bureau where she worked for the last 14 years. For the past six years, she was Congressional Liaison Assistant for the Census Bureau.

HONOR AWARDS TO BELTSVILLE AREA SCIENTISTS

Timothy H. Blosser, Ruminant Nutrition Laboratory, ASI, has received the Award of Honor from the American Dairy Science Association (ADSA) for 1984. This award recognizes Dr. Blosser's outstanding contributions and distinguished service to the profession.

Henry Tyrrell, Ruminant Nutrition Laboratory, ASI, was awarded the 1984 ADSA American Feed Manufacturers' Dairy Nutrition Research Award. The award recognizes Dr. Tyrrell's significant research accomplishments over the past 10 years.

J. David Warthen, Jr., Biologically Active Natural Products Laboratory, AEQI, shared in the USDA Superior Group Achievement Award for his cooperative research on the brassins program with ARS scientists at the Northern Regional Research Center. Beltsville scientists, Luis E. Gregory, PPHI, Werner J. Meudt, PPHI, George L. Steffens, HSI, and Malcolm J. Thompson, PPI, also shared in this group award.

Thomas J. Sexton, Chief, Avian Physiology Laboratory, ASI, recently received an award under the Federal Inventors' Incentive Award Program in relation to his research work and patent on the process of diluting and preserving poultry semen.

RESEARCH PROGRESS - Detoxifying Pesticide Wastes Made Easier

Chemical breakdown of 2,4-D, atrazine, paraquat and other agricultural chemicals was dramatically improved in recent tests of a portable disposal method developed by Philip C. Kearney, Chief, Pesticide Degradation Laboratory, AEQI.

The method exposes liquid pesticide waste to two treatments. First, the combined action of high-energy ultraviolet (UV) light and oxygen loosens strong molecular bonds, rendering most pesticide compounds more biodegradable. The partially decomposed waste then goes into a disposal tank of soil and gravel for further breakdown by microorganisms.

Scientists mounted a UV light, generator, and soil tank on an 18-foot trailer to make the method portable.

Costs for purchasing and operating the mobile disposal method are lower than costs of incinerating toxic wastes, but may not be as economical as some current methods of disposal on land. However, the mobile method simplifies handling of pesticide wastes, particularly at remote places where transportation could be difficult or expensive.

Farmers, commercial pesticide applicators and smaller-scale manufacturers-wholesalers who handle pesticides will probably be the main beneficiaries of the new portable treatment. However, USDA's Animal and Plant Health Inspection Service may have a more immediate use for the treatment. They and ARS have entered into a cooperative agreement to test its effectiveness on a sample of several thousand gallons of organophosphate waste APHIS has in storage. The compounds which include coumaphos, amitraz, phosmet, and ciodrin were used in controlling parasites on cattle.

AGRONOMIST JOINS SCIENCE ADVISOR'S STAFF

Dr. Alvin Young, an agronomist, has joined the Office of Science and Technology Policy (OSTP) in the Executive Office of the President. In this position, Dr. Young will provide policy analysis and advice to the President's Science Advisor, Dr. George Keyworth, III, on issues related to agricultural science and education. Dr. Young is a native of Wyoming. His B.S. and M.S. are from the University of Wisconsin. His Ph.D. in agronomy is from Kansas State. Dr. Young replaces Dr. Gordon Wallace, who has returned to NIH.

VISITING SCIENTISTS

Yung Keun Lee, Research Scientist, Sericulture Experiment Station, Ministry of Agriculture and Fishery, Republic of Korea, is working with Robert M. Faust of the Insect Pathology Laboratory, PPI, to further define the molecular biology and genetic control of toxin production by the entomopathogenic bacteria, Bacillus Thuringiensis. Lee's primary research focus has been silkworm pathology and protection. Specific research activities include investigations on microsporidian ("pebrine"), fungal ("muscardine") and baculoviruses (NPV) diseases of silkworms. He has contributed significantly to the development of novel methods for disease control in the Korean silkworm industry. He also has a keen interest in the establishment of a microbial insect control program in Korea with particular emphasis on such lepidopteran pests as the cabbage butterfly, fall webworm and the pine tussock moth. Yung K. Lee is the Head of the Silkworm Protection Laboratory of the Sericultural Experiment Station.

Bhuiyan N. Islam, Professor in the Department of Entomology, Bangladesh Agricultural University of Mymensingh, is working with Martin Jacobson of the Biologically Active Natural Products Laboratory, AEQI, on the isolation, identification, and biological evaluation of insect antifeedants and repellents from plant products. Dr. Islam's three-month assignment to BANPL is being sponsored by the Agency for International Development.

Nuansri Tayaputch began a 6-month appointment with Dr. Allan R. Isensee, Plant Physiologist, Pesticide Degradation Laboratory, AEQI. Mrs. Tayaputch is on leave from the Division of Agricultural Toxic Substances, Department of Agriculture, Bangkok, Thailand. She is here on an IAEA Fellowship and will be conducting research on the fate of pesticides in aquatic ecosystems.

Xiao-Ying Zheng, Vegetable Research Institute, Beijing Academy of Agriculture, China, will be visiting Dr. Lowell W. Woodstock, Seed Research Laboratory, PGGI, through November 24, 1984, under the auspices of the United Nations Food and Agriculture Organization. While at Beltsville, Mrs. Zheng will study seed physiology including techniques for seed treatment, preservation of germplasm, and evaluation of seed vigor and viability.

EMPLOYEE ACTIVITIES

Robert M. Faust of the Insect Pathology Laboratory, PPI, presented two invitational lectures at the Department of Molecular Biology, Madurai Kamaraj University, Madurai, India and the Genetics and Cell Biology Center, Indian Institute of Science, Bangalore, India. Dr. Faust was in India to review a special foreign currency cooperative project on the maximization of biocide factor production from Bacillus species by a combination of physiological and recombinant DNA studies under a PL 480 grant agreement between the Indian Molecular Biology Laboratory at Madurai and the Insect Pathology Laboratory.

Martin Jacobson, Chief, Biologically Active Natural Products Laboratory, AEQI, presented invitational lectures at the Indian Agricultural Research Institute, Delhi, India, and the Nuclear Institute for Biology and Agriculture, Faisalabad, Pakistan, where he reviewed special foreign currency cooperative projects.

Drs. E. P. Masler, Research Physiologist, and A. B. Borkovec, Chief, Insect Reproduction Laboratory, presented an invitational paper at a conference on "Molecular Messengers in Nature" sponsored by the Fogarty International Center, NIH, on May 16-18, 1984. Dr. Borkovec served as a moderator at the May 17 afternoon session.

Mr. Lawrence G. Pickens, Livestock Insects Laboratory, AEQI, presented a poster at the ARS Workshop on the Chemical and Physiological Basis of Odorant-Mediated Behavior, May 21-23, 1984, Gainesville, Florida.

Dr. John F. Carroll, Livestock Insects Laboratory, AEQI, visited the Lone Star Tick Laboratory, Poteau, Oklahoma, on May 7-11, 1984, to discuss new techniques for studying tick populations under laboratory and field conditions.

Dr. Howard Jaffe, Livestock Insects Laboratory, AEQI, gave an invited presentation entitled "HPLC Isolation of Invertebrate Neuropeptides" at the 1984 HPLC Symposium "Advances in the Separation of Biologically Active Molecules" on June 14, 1984, at the University of Maryland.

Dr. Richard W. Miller, Livestock Insects Laboratory, AEQI, was invited by the National Milk Producers Federation to present an overview of our fly control work to the Interstate Milk Shippers Committee on May 11, 1984, in Arlington, Virginia.

Dr. K. D. Murrell, Chief of the Helminthic Diseases Laboratory, API, was elected on July 12, 1984, to the International Trichinellosis Commission. As a commission member, Dr. Murrell will serve as a representative from the United States to coordinate and provide information on the development and operation of trichinellosis control programs throughout the world. The International Trichinellosis Commission serves to monitor, support and encourage international efforts toward control of this parasitic disease. The commission also has as one of its aims the standardization of diagnostic and treatment procedures for human trichinosis, in addition to encouraging both basic and applied research on trichinellosis.

James F. Parr, former Chief of the Biological Waste Management and Organic Resources Laboratory and presently Coordinator, ARS/USAID Dryland Management Project, recently received a Governor's Citation from the State of Maryland for his efforts in providing guidance, expertise, and technology for the development of a sewage sludge composting process and the utilization of the final product. The citation was presented to Dr. Parr by Mr. Reed McDonagh, Deputy Director of the Maryland Environmental Services on June 11, 1984.

CASH AWARDS

Baum, Philip, Vegetable Laboratory, HSI. (For excellence in sustained performance of diverse duties supporting the BARC-NER-ARS potato breeding, progeny evaluation, and varietal development program.)

Ewing, Robert B., Biosystematic Parasitology Laboratory, API. (For sustained high level production of scientific illustrations of superior quality.)

Ferensic, Marie M., Chemicals Coordination Unit, AEQI. (For superior performance in support of ARS research on agricultural chemicals through computerization to achieve greater efficiency in processing, storing and retrieving chemical records.)

Moore, Eleanor E., Helminthic Diseases Laboratory, API. (For superior performance of duties involving the evaluation of protective antigens from Trichinella spiralis in mice.)

Reynolds, Robert D., Vitamin and Mineral Nutrition Laboratory, BHNRC. (For representing the Beltsville Human Nutrition Research Center in difficult negotiations with the National Cancer Institute that involved the design and cost estimate of projected studies involving several of our laboratories and that resulted in a 3-year cooperative agreement worth nearly \$2 million.)

Stansbury, Audrey J., Weed Science Laboratory, AEQI. (For exceptionally high quality performance of lipid analytical procedures and innovative contributions to the development of new and improved methodologies.)

Wehr, Barbara, E., Weed Science Laboratory, AEQI. (For the exceptional quality of secretarial duties performed in support of the Weed Science Laboratory and a national program on narcotic plants.)

Wilkins, Owens B., Animal Parasitology Institute (API). (For continuous outstanding performance as Animal Caretaker and for exemplary maintenance of farm equipment.)

Anderson, William R., Helminthic Diseases Laboratory, API. (For superior performance of duties involving the evaluation of serological tests for trichinosis and toxoplasmosis.)

Harmon, Daniel L., Field Crops Laboratory, PGGI. (For assuming responsibility for the enhancement of computerization of the Uniform and International Cereal Rust and Powdery Mildew Nursery Program.)

Shawver, Gusta M., Chairman's Office, ASI. (For sustained superior performance in providing clerical, administrative, and program support to the Animal Science Institute Chairman's Office resulting in smooth efficient operation.)

QUALITY INCREASES

Frazier, Eugene, Plant Pathology Laboratory, PPI. (For superior performance of hybridizations, pathogen inoculations, and other duties contributing to the development of comprehensively rust resistant snap bean germplasm.)

Hungerford, Wayne E., Light and Plant Growth Laboratory, PPI. (For careful, diligent and thoughtful analysis of plant samples.)

Jones, Joyce J., U.S. National Arboretum (NA), BA. (For sustained excellent, prompt, and efficient execution of the duties of the Director's Secretary during a prolonged vacancy period.)

Tousignant, Marie E., Plant Virology Laboratory, PPI. (For outstanding ability to adapt RNA sequencing technology to CARNA 5 and virus research.)

Johnson, Gloria J., Animal Improvements Program Laboratory, ASI. (For sustained superior performance as a secretary-typist in providing administrative, secretarial, and clerical support at the Animal Improvement Programs Laboratory, resulting in smooth and efficient operation of the Laboratory.)

Wong, Yen-i, Analytical Chemistry Laboratory, AEQI. (For substantially increasing the annual number of completed projects in support of the National Minor Use Program, IR-4.)

Lowe, Sherry, Family Economics Research Group. (For accepting additional responsibilities for the editing of Family Economics Review and for carrying out these responsibilities with skill and dedication in order to produce a quality publication.)

Hubbard, Suzanne M., Animal Improvement Programs Laboratory, ASI. (For sustained superior performance as an editorial assistant in insuring rapid and accurate publication and dissemination of research results and technical support material in support of the genetic research program at the Animal Improvement Programs Laboratory.)

Poole, Lydia R., Plant Exploration and Taxonomy Laboratory, PGGI. (For effective and efficient computer operation and exceptionally high level of sustained performance.)

PARKING LIMITATION AT NAL MAIN ENTRANCE

During the past year there have been increasing numbers of National Agricultural Library (NAL) patrons, particularly Beltsville area personnel, who need to access the library briefly to pick up or return materials, but have been unable to find a short-term parking space in the front of the building.

The Director of NAL has considered alternative ways to accomodate them, particularly during inclement weather. For the time being, the parking limitation in front of the building is being changed from 1 hour to 1/2 hour.

This will work to the disadvantage of some who find it convenient to park in front of the building to conduct other business with people in the NAL building. However, the visitor parking lot is available for their use and is reasonably accessible and seldom full.

NAL will be checking on vehicles parked in the 30-minute area, and beginning October 1, 1984, violators will be ticketed.

Waldemar Klassen

WALDEMAR KLASSEN
Acting Director
Beltsville Area



NOTES FROM THE DIRECTOR

No. 158

September 1984

MURRELL IS SCIENTIST OF THE YEAR

Terry B. Kinney, Jr., the ARS Administrator, has announced that K. Darwin Murrell, Chief of the Helminthic Diseases Laboratory, API, is the 1984 ARS Northeastern Region Scientist of the Year. Dr. Murrell was cited for his outstanding leadership and personal research on controlling parasites of swine. He will receive a cash award and a special \$25,000 allocation to support his research.

Malcolm J. Thompson, Insect Physiology Laboratory, PPI, was the 1983 NER Scientist of the Year.

ARS-INDUSTRY COLLABORATION CITED

Industrial Research and Development magazine has selected the fire ant growth regulator, "Pro-Drone," as one of the 100 most significant technical advances of 1983. The initial discoveries leading to the development of Pro-Drone were made by Meyer Schwarz, research chemist, Organic Chemical Synthesis Laboratory, AEQI. Dr. Schwarz subsequently collaborated with scientists in Stauffer Chemical Company which manufactures and sells Pro-Drone. The discovery and development of Pro-Drone is an important contribution to the Federal-State fire ant control program. Dr. Schwarz and his cooperators at Stauffer were designated to share the IR-100 Award for 1983.

ARBORETUM OPENS COUNTRY GARDEN

At a ceremony on the grounds of the U.S. National Arboretum this summer, H. Marc Cathey, Director of the Arboretum, opened to the public a new 3-acre National Country Garden. The new garden is one of 30 landscape gardens and plant collections at the National Arboretum. This recent addition is designed as a public showcase for visitors to see how to build and grow flower and vegetable gardens in the limited space of an urban setting.

RESEARCH PROGRESS--Monoclonal antibodies produced for soil microbiology.

Monoclonal antibodies produced by hybridoma technology are powerful research tools. They can be produced to attach to specific molecular structures--structures that can be used to identify things as diverse as pesticide moieties and antigenic sites associated with the genetic potential of viruses, bacteria, fungi, and plants.

Currently, Wylie Burge, Biological Waste Management & Organic Resources Laboratory, AEQI, is developing techniques to apply hybridoma technology to soil microbiology. The first goal is to use monoclonal antibodies to isolate the human pathogen Legionella pneumophila (LP) directly from composts and soils in which they have been presumptively identified by immunofluorescence staining. This work is being conducted in cooperation with Dr. Emilio Weiss,

Naval Medical Research Institute, and Dr. Rita Colwell, University of Maryland. David Hussong, a Ph.D. candidate at the University of Maryland and currently working with Dr. Burge, has successfully developed 163 stable clones of hybridomas prepared by use of eight strains of LP. The antibodies produced will be used to construct immunoaffinity columns to recover the various strains of LP from soil and compost. Earlier attempts by the Center for Disease Control, Atlanta, Georgia, to isolate these organisms by the established method using guinea pig inoculation failed, because the compost extracts were too toxic for the animals.

Cooperative studies are being planned with David Kuykendall, Nitrogen Fixation & Soybean Genetics Laboratory, PPHI, to use monoclonal antibodies to select mutants of Rhizobium japonicum and survey gene libraries of this organism. Dr. Burge and Pat Millner, Biological Waste Management & Organic Resources Laboratory, AEQI, expect monoclonals to be extremely useful in the studies of recognition and other responses between plants and their root pathogens, commensals, or symbionts.

RESEARCH PROGRESS--Increased soybean yields resulting from "elite" nitrogen fixing Rhizobium.

Several isolates of newly acquired Rhizobium germplasm from the People's Republic of China have been identified as more efficient than the currently recommended inoculant strains. The new strains exhibit the capability of increasing yields of soybean by an average of 43 percent over uninoculated (nonfixing) controls. In addition, because several isolates exhibit fast growth in fermentation media, they will be of value to commercial inoculum production to improve nitrogen fixation efficiency on U.S. soybean cultivars.

RESEARCH PROGRESS--Increased seed size and improved protein levels in rice resulting from tissue culture of pollen.

The test tube culture of immature rice pollen and the introduction of appropriate inhibitors such as antimetabolites of lysine (an essential amino acid) select cells with improved protein and lysine levels. These cells, when regenerated into plants, produce offspring with larger seeds and higher lysine and protein levels as well. The techniques provide new tools for crop improvement.

RESEARCH PROGRESS--Sugarbeet breeding program based on photosynthate partitioning yields increased sugar production.

A sugarbeet hybrid was produced from two lines selected in controlled environment studies for a high taproot-to-leaf weight ratio (TLWR) as seedlings. The productivity of the high TLWR hybrid was compared in field tests in Minnesota and Michigan with that of hybrids unselected for TLWR. The high TLWR hybrid produced 15 percent more recoverable sugar per acre. This technology has the potential to increase the total value of beet sugar

production in the United States by \$150 million per year with little additional input cost. Sugarbeet seed producers in the United States and Europe are beginning to employ this selection and breeding strategy.

AVAILABILITY OF 60SX GCFTIR INSTRUMENT

ARS scientists at Beltsville desiring infrared spectra on compounds may make use of the 60SX in Building 306, Room 322. These compounds must be in the form of films, KBr pellets, mulls, or solutions. User-friendly macros written by John D. Warthen, Jr., Biologically Active Natural Products Laboratory, AEQI, will scan, plot, and label, utilizing the TGS and MCT (N₂-cooled) detectors. Only minimal supervision is available to scientists in this area without collaboration.

At this time, all GCFTIR work will be by collaboration only because of the involvement of no less than 12 complicated macros and many months of training and experience.

Contact Dr. Warthen (344-2139) for information.

EMPLOYEE ACTIVITIES

Martin Jacobson, Chief of the Biologically Active Natural Products Laboratory, AEQI, was awarded a certificate by the American Oil Chemists' Society for his presentation of the most outstanding paper at the Society's National Meeting held in Dallas, Texas, in April 1984. The title of the presentation was "Neem Seed as a Natural Source of Pesticidal Compounds."

James F. Parr, former Chief of the Biological Waste Management & Organic Resources Laboratory, AEQI, has accepted the position of Coordinator of a Joint ARS-USDA/USAID Project. In his new assignment, Dr. Parr will seek to improve the productivity of dryland or rainfed agricultural systems in developing countries of the Near East, Sub-Sahara, and Southeast Asian Regions. He will have an office in Building 005 and work closely with the National Program Staff.

Albert Rango, Chief of the Hydrology Laboratory, PPHI, has been voted President-elect of the American Water Resources Association (AWRA). He will serve as President-elect for 1985 and then become President of AWRA in 1986.

Frank S. Santamour, Jr., research geneticist at the U.S. National Arboretum, was installed as President of the International Society of Arboriculture (ISA), at its 60th annual conference in Quebec in August 1984. The ISA, with more than 4,000 members, is the world's largest organization dealing exclusively with the culture and preservation of trees in landscape situations. In recent years, the ISA has provided \$10,000 to \$15,000 annually in research grants to stimulate and foster research on urban trees.

Martin M. Kulik, Seed Research Laboratory, PGGI, has been appointed to the Editorial Advisory Board of "Field Crops Research" and associate editor of the Journal of Seed Technology.

AWARDS

Cash Awards:

Barclay, Janet M., Bioenvironmental Bee Laboratory, PPI. (Outstanding performance in establishing computerized land inventory and classification system, and updating field maps of the Beltsville Agricultural Research Center.)

Batra, Suzanne W. T., Beneficial Insect Introduction Laboratory, IIBIII. (Outstanding performance in establishing computerized land inventory and classification system, and updating ecology areas of the Beltsville Agricultural Research Center.)

Brack, Thelma A., Pesticide Impact Assessment Staff, AEQI. (Dedicated and outstanding performance in preparing camera-ready copy of the Proceedings of BARC Symposium VIII, ARS Handbook No. 571 and ARS Handbook No. 378.)

Burke, Ronald G., Chairman's Office, API. (Continuous outstanding performance as Animal Caretaker.)

Ershaw, Rosemary C., Analytical Chemistry Laboratory (ACL), AEQI. (Sustained superior performance in providing the ACL with consistently high quality clerical services and administrative support.)

Freeland, Shirley L., Germplasm Resources Information Network (GRIN), PGGI. (Providing outstanding secretarial assistance to the PGGI Office and the GRIN during a critical period.)

Miller, Victor L., Farm Management Branch, Division of Operations. (Outstanding performance in establishing computerized land inventory and classification system, and updating field maps of the Beltsville Agricultural Research Center.)

Shaffer, George F., Jr., Chairman's Office, API. (Continuous outstanding performance as Animal Caretaker Foreman.)

Smothers, Joseph D., Chairman's Office, API. (Continuous outstanding performance as Animal Caretaker.)

Stringfellow, Frank, Helminthic Diseases Laboratory, API. (Superior achievement in the discovery and development of an in vitro cultivation system for Haemonchus contortus.)

Whitcomb, Robert, Insect Pathology Laboratory, PPI. (Outstanding performance in establishing computerized land inventory and classification system, and updating ecology areas of the Beltsville Agricultural Research Center.)

Quality Increases:

Dulin, Anne M., Milk Secretion & Mastitis Laboratory (MS&ML), ASI. (In recognition of her interest, dedication, and achievement of excellence in all aspects of her research endeavors in the MS&ML.)

Helkie, Cita C., Fruit Laboratory, HSI. (Effectively performing duties supporting research on bacterial plant diseases.)

Henegar, Roberta B., Insect Pathology Laboratory, PPI. (Sustained high level performance, contributions beyond the requirements expected of her assignment, and devotion to all phases of her work.)

RABIES ON THE RISE

The National Society for Medical Research reports that documented animal rabies cases in the United States have more than doubled over the last 3 years. In 1978, 3,298 cases were reported; in 1981, the figure climbed to 7,211.

Domestic animals were involved in only 15 percent of the rabies cases, while the remaining 85 percent were cases of rabies in wild animals, with bats and skunks accounting for more than half of these cases.

Researchers note that racoon rabies has become well established in northern Virginia, West Virginia, and Maryland.

Children should be warned never to approach any wild animal, especially one that is acting strangely. Not being afraid of humans is one sign that an animal may be rabid.

Waldemar Klassen

WALDEMAR KLASSEN

Acting Director

Beltsville Area

FT 1981 FUNDING

Program managers have been busy over the year for Senate confirmation and updating their management plans for FY 1982. On October 17, 1981, the ARS Administrator and key members of his staff reviewed our plans for the Beltsville Area. The Administrator made a number of decisions which will help us to meet some of our high priority program needs during 1982.

Mr. Sluskey released \$2,777,000 for the Beltsville Area to upgrade research facilities and improve our research facilities. Included in this release were funds to acquire instrumentation for the new human refrigeration in the Beltsville Human Nutrition Research Center and \$343,000 to upgrade research programs at the U.S. National Arboretum. The Administrator also provided an additional \$467,000 from his contingency funds to replace the small animal facility at the Animal Parasitology Institute.



NOTES FROM THE DIRECTOR

No. 159

December 1984

SOVIET MINISTER VISITS BELTSVILLE

Soviet Agriculture Minister Valentin Karpovich Mesyats and a delegation of high level science officials from the U.S.S.R. visited the Beltsville Agricultural Research Center on November 30. They were accompanied by Dr. Orville G. Bentley, Assistant Secretary for Science and Education, and Dr. Terry B. Kinney, Jr., the Administrator of ARS.

We showed the delegation some of our current research programs, including plant germplasm resources, anther culture in rice, potato improvement, separating livestock sperm bearing the X chromosome from those with the Y chromosome, microinjection in embryos for improving production efficiency in animals, immunology and control of mastitis, and mineral nutrition of turkey embryos.

Following his visit to Beltsville, the Soviet Minister visited Agriculture Secretary John R. Block's farm in Illinois. During the visit, Secretary Block announced an agreement to renew scientific and technological exchanges in agriculture between the U.S. and the Soviet Union. The agreement will enable the United States to resume collections in the Soviet Union of wild plants and genetic materials to be used in plant breeding and development.

Dr. Bentley informed Dr. Kinney that the tour of Beltsville had been "right on the mark." Further, Dr. Bentley stated: "Beltsville serves a unique role as a 'showcase' for our agricultural research system, and once again, you and your people demonstrated that function serves us all well. Thank you for this one--and I'm sure we will be back again."

FY 1985 FUNDING

Program managers have been busy over the past few months developing and updating their management plans for FY 1985. On October 17, we met with the ARS Administrator and key members of his staff to review our plans for the Beltsville Area. The Administrator made a number of decisions which will help us to meet some of our high priority program needs during 1985.

Dr. Kinney released \$2,777,000 for the Beltsville Area to upgrade scientific equipment and improve our research facilities. Included in this amount were funds to acquire instrumentation for the new human calorimeter in the Beltsville Human Nutrition Research Center and \$345,000 to maintain essential programs at the U.S. National Arboretum. The Administrator also provided an additional \$467,000 from his contingency funds to replace the small animal facility at the Animal Parasitology Institute.

We have also been advised that the Beltsville Area will receive \$855,000 in base program increases for 1985 to support six new research thrusts. Overall, therefore, the Beltsville Area received program releases totaling almost \$4.1 million for FY 85.

CFC GOAL ACHIEVED

Terry B. Kinney, Jr., ARS Administrator, has asked that I express to you his sincere appreciation for your excellent support of the recent Combined Federal Campaign (CFC). Dr. Kinney noted that for perhaps the first time in history, ARS reached its goal. It also appears that ARS will be the highest Agency in Science and Education and one in the Department that went over the top. Dr. Kinney said, "I am very appreciative of the stronger than ever 'can do' attitude that prevails at Beltsville." Employees in the Beltsville Area contributed \$59,616, exceeding 110% of the established dollar goal. About 60% of our employees contributed, with an average gift being \$83. We appreciate your spirit of giving during 1984.

RESEARCH PROGRESS

Interaction of Soil Bacteria with Pesticides

There is increasing evidence that soil microorganisms are rapidly destroying soil applied pesticides before the compounds can effectively control the pest. These are termed "problem soils" and the situation is extremely critical in certain corn-producing areas of the midwest where corn rootworm is causing crop losses this year. The problem has been difficult to investigate because isolating causative organisms has proven difficult.

Scientists in the Pesticide Degradation Laboratory, AEQI, have isolated a very active soil bacterium that can destroy carbofuran in a matter of hours. Carbofuran is one of the major soil-applied insecticides used for corn rootworm control. The bacterium is also able to degrade other chemically related insecticides.

ARS can now study the biochemistry and genetics of this bacterium. We want to determine whether DNA in the form of plasmids is responsible for the spread of this trait throughout populations of bacteria. Our scientists also hope to isolate the enzyme and use it to learn more about the degradation process and to discover and develop remedial measures.

Neem Seed Extract Effective as an Insecticide

The leafminer, Liriomyza trifolii, is a worldwide pest of horticultural crops. Recent rescision by EPA of certain chemicals used for leafminer control has reemphasized the need for new, alternative control methods. ARS scientists at Beltsville are exploring new control measures.

Margosan-0 is a liquid formulation of a natural insecticide (neem seed extract) that is being developed for commercial use on ornamentals. The formulation, when applied as a soil drench, controlled the leafminer on chrysanthemums. A soil drench of 0.2% and 0.4% Margosan-0 was the most effective concentration in killing leafminers, and the insecticidal activity lasted for three weeks. No inhibition of plant growth occurred after repeated drenchings with Margosan-0. In addition to its economic damage to ornamentals, the leafminer is also a serious pest for celery and tomato producers.

Influence of Fiber on Mineral Balances in the Diet

Recommendations for modification of the present United States' diet have usually included an increase in the intake of fiber. Diets high in fiber have been shown to improve glucose tolerance and lower blood lipids. However, some studies have indicated that high levels of fiber may bind essential minerals, thus decreasing their bioavailability. A study at the Beltsville Human Nutrition Research Center in which 52 human subjects consumed a diet containing about 40 g of fiber did not adversely affect zinc, copper, manganese or iron balances but did lower calcium and magnesium balances. When the starch of the diet was replaced by sugars, the absorption of copper and manganese was decreased. These results indicate that: (1) the levels of magnesium and especially calcium should be increased in diets high in fiber, and (2) an interaction exists between sugars and certain minerals that can adversely influence the bioavailability of the mineral.

Health Benefits of Yogurt

Yogurt, a fermented milk, is reputed to have therapeutic properties with respect to human intestinal diseases, especially those due to infection with harmful germs. Previously, ARS scientists in the Beltsville Human Nutrition Research Center demonstrated that a diet consisting solely of yogurt, compared to one consisting solely of milk, does alleviate the symptoms of gastrointestinal infection in the rat, which was used as a model of human intestinal infection.

Beltsville scientists now have demonstrated that yogurt's therapeutic effect is intestinal in origin and is not, primarily, a general body effect. The effect depends upon regular consumption of yogurt and it occurs at normal levels of vitamin and mineral dietary supplementation.

These and previous findings substantiate, partially at least, the therapeutic reputation of yogurt. Further investigation of the effect is continuing. It could be of great relevance to the use of the excess cow's milk produced in the United States as a major source of calories and protein for the world's impoverished and malnourished individuals, especially weaned infants and the aged. Such people are highly susceptible to intestinal infections.

NEW RESEARCH SCIENTISTS

John B. Dame, Research Microbiologist, recently joined the Biosystematic Parasitology Laboratory, API, where he will be cloning genes of parasites of domestic animals. The objectives of this work are to use recombinant DNA techniques to identify and classify parasites and to clone genes encoding parasite antigens for diagnostic testing and vaccine development. Dr. Dame received a Ph.D. (Biochemistry) from the University of Washington (Seattle). He was a Postdoctoral Research Associate (Pharmacology) at the University of North Carolina, and, most recently, Senior Staff Fellow, Laboratory of Parasitic Diseases, National Institutes of Health, where his work on cloning genes of potential use in a malaria vaccine received international acclaim.

Milton D. Huettel has joined the Beneficial Insect Introduction Laboratory, IIBIII, to establish a new research program on the molecular genetics of beneficial and exotic insects. Dr. Huettel received his Ph.D. in 1972 at the University of Texas, Austin, studying with Dr. Guy L. Bush. Since then, he has been located at the Insect Attractants, Behavior, and Basic Biology Research Laboratory, ARS, Gainesville, Florida, where he established a research program using genetics to study various aspects of insect behavior and ecology. At Beltsville, Dr. Huettel will take a key role in the Institute's long-term, basic research program on the application of genetics to biosystematics and the practical biological control of agricultural pests.

Jeffrey S. Karns, Microbiologist, has joined the Pesticide Degradation Laboratory, AEQI. Dr. Karns will conduct research on the genetic basis of the biochemical transformation of pesticides in soils, and microbial cultures. He received a B.S. degree in Medical Technology from the Pennsylvania State University and a Ph.D. in Microbiology from the Medical College of Virginia Campus of Virginia Commonwealth University. Dr. Karns did postdoctorate research in the laboratory of Dr. A. M. Chakrabarty at the University of Illinois at Chicago on the genetics and metabolism of pesticides.

J. H. Kirkbride, Jr., recently joined the Plant Exploration and Taxonomy Laboratory, PGGI. He received a Ph.D. in 1975 from the City University of New York and, subsequently, served as Associate Curator, Department of Botany, Smithsonian Institution, for four years. From 1979 to June 1984, he was a Professor in the Department of Plant Biology, University of Brasilia, where he taught courses in taxonomy, ecology, and economic botany. His research was focused on taxonomy of Neotropical Rubiaceae. At Beltsville, Dr. Kirkbride's research will be on taxonomy of economic plants important to the National Germplasm System, especially cucurbits, with emphasis on new technologies that can be employed to resolve taxonomic problems.

VISITING SCIENTISTS

Two foreign postdoctoral research fellows have joined the Helminthic Diseases Laboratory, API. Dr. Hanspeter Marti arrived in September from Basel, Switzerland. Dr. Marti received his Ph.D. in May of this year from the Swiss Tropical Institute. Dr. Marti is being supported by grants from several Swiss Foundations and will be working with K. D. Murrell on the immunology of swine trichinosis.

Dr. Kamanga-Sollo arrived in October from Kenya. Dr. Kamanga-Sollo holds a DVM degree and just recently received a Ph.D. from the University of Nairobi while on the Faculty of Veterinary Medicine. Dr. Kamanga-Sollo will be supported by a fellowship from the World Bank, and will be working with M. Rhoads and K. D. Murrell, Helminthic Diseases Laboratory, API, on the immunology and immunodiagnosis of bovine and porcine cysticercosis.

Yin Sui-Gong, Shenyang Agricultural College, arrived at Beltsville in November to begin a one-year study of agricultural mite systematics with E. W. Baker, Systematic Entomology Laboratory, IIBIII. The Yin-Baker project is the sixth in a series of long-term cooperative research projects between IIBIII scientists and PRC scientists. Plans are currently being prepared to hold a session of the 10-day Parasitic Hymenoptera Training Course, led by SEL in cooperation with Canadian and state associates, in the PRC in 1986.

Dr. Alex Monsi, Avian Physiologist and Senior Lecturer at Rivers State University of Science and Technology, Nigeria, will spend a year in the Avian Physiology Laboratory, ASI, working with Drs. Helene Cecil and Murray Bakst. While at BARC, Dr. Monsi will investigate the efficacy of various techniques for determining the rate of spermatogenesis and quantification of spermatogenic cells in the turkey.

B. S. Thyagaraja, Joint Director, Regional Sericulture Research Station, Ministry of Commerce, India, is working with Thomas J. Kelly and Edward P. Masler of the Insect Reproduction Laboratory, AEQI, on developing isolation techniques and assay methods for insect neuropeptide hormones and their target cell products. Dr. Thyagaraja has worked extensively in developing, maintaining and distributing strains of the silkworm, Bombyx mori, for the silk industry in India. He also has a keen interest in determining the biochemical and endocrinological mechanisms which regulate development and reproduction of the silkworm and other insects. His one year post-doctoral fellowship is being sponsored by the Ministry of Home Affairs, Government of India.

EMPLOYEE ACTIVITIES

Dr. T. E. Devine has been selected as an Associate Editor of Crop Science, the research journal of the Crop Science Society of America. He is with the Nitrogen Fixation and Soybean Genetics Laboratory, PPHI.

Mr. Ronald G. Burke and Mr. James R. Youmans, Animal Caretakers, API, received certificates of appreciation from the Virginia-Maryland Regional College of Maryland, for their services in connection with studies conducted to identify the pathogen responsible for Potomac fever, a local disease of horses.

Dr. Freddi Hammerschlag, Tissue Culture and Molecular Genetics Laboratory, PPHI, has been appointed Editor of the National Capital Area Branch Tissue Culture Association Newsletter and Associate Editor of Phytopathology.

Dr. Sheldon Reiser, Chief, Carbohydrate Nutrition Laboratory, BHNRC, recently organized and chaired an American Chemical Society Symposium on "Sugars: Chemistry and Nutrition." He also presented a paper entitled, "Interaction Between Dietary Sugars and Copper Status in Rats."

Dr. J. T. Vanderslice, Nutrient Composition Laboratory, BHNRC, has been selected as a member of the Editorial Board for a new journal entitled, "Journal of Micronutrient Analysis."

AWARDS

Cash Awards:

Bailey, Nancy J., Family Economics Research Group. (For exceptional competence, initiative, and good humor in filling in for an absent employee over an extended period of time.)

Burford, James B., Water Data Laboratory, PPHI. (Merit Pay)

Carpenter, Bessie L., Chairman's Office, PPHI. (For outstanding secretarial and logistic support to the BARC Symposium IX Chairman and Organizing Committee.)

Ciniero, Peggy L., Nitrogen Fixation & Soybean Genetics Laboratory, PPHI. (For exemplary high quality secretarial support.)

Caldwell, Charles R., Plant Stress Laboratory, PPHI. (For acquisition of surplus properties that have expanded several laboratory capabilities without requiring additional expense to the Labs or BARC.)

DeVilbiss, E. David, Organic Chemical Synthesis Laboratory, AEQI. (For excellence in maintaining the mass spectrometer in operating condition.)

Foy, Charles D., Plant Stress Laboratory, PPHI. (Merit Pay)

Hagan, Jeanne H., Beneficial Insect Introduction Laboratory, IIBIII. (For sustained superior performance of duties resulting in efficient administrative operation of the BIIL, for 9 months without assistance, while accepting and admirably performing additional duties.)

Lefcourt, Alan M., Milk Secretion & Mastitis Laboratory, ASI. (Merit Pay)

Rango, Albert, Hydrology Laboratory, PPHI. (Merit Pay)

Weber, Dean F., Nitrogen Fixation & Soybean Genetics Laboratory, PPHI. (Merit Pay)

Wergin, William P., Plant Stress Laboratory, PPHI. (Merit Pay)

Quality Increases:

Bohning, Mark A., Germplasm Resources Laboratory, PGGI. (For sustained high performance.)

duCellier, Judith L., Germplasm Resources Laboratory, PGGI. (For sustained high performance.)

Hebron, Philip F., Field Crops Laboratory, PGGI. (For sustained high quality performance in providing technical support for entomological research in the Field Crops Laboratory.)

Hucht, Dennis F., Ruminant Nutrition Laboratory, ASI. (For superior performance of duties and exemplary interest and dedication to research effort.)

LaCoy, Laura H., Chairman's Office, HSI. (For effectively performing duties supporting the management and operations of the Office of the Chairman, HSI.)

Thompson, Susan M., Plant Virology Laboratory, PPI. (For valuable and sustained contributions to the application of recombinant DNA techniques to plant viroid research.)

EXPLORERS IN SCIENCE

Last month the Boy Scouts of America approached us to encourage the Beltsville Area to sponsor our Explorer Post. There are 21 Explorer Posts in Prince George's County north of Route 50, one of the best known of which is at Goddard Space Flight Center. Explorers are young men and women aged 14 through 20. Each Explorer Post is unique and has a program developed around the interests of the youth and the capabilities of the adult leaders and advisors. Explorer posts can specialize in a variety of subjects including career programs, social, service, outdoor and fitness programs or mixtures of these. We are proposing to start one in science to encourage youth to become involved in agricultural science as a career. We are looking for resource persons and leaders. If you have an interest, please contact me directly.

SEASONS GREETINGS TO ALL

The last few weeks of the calendar year are intended to be a joyous holiday season. Let us take time to enjoy our families and friends and to take stock of our blessings.

During the past year, we have struggled with a difficult agenda that was designed to assure the Agency's survival as a highly effective research organization--in a time of fiscal adversity. We embarked upon a substantial reorganization in which a number of administrative and service units were reduced in size. The need for improved accountability at the project level and a new annual resource management planning process are requiring us to make difficult adjustments. On the other hand, a number of laboratories received budget increases and on the whole the scientists have been very productive.

All of us in the Area Office wish you and your families a most happy holiday season and a safe and prosperous new year.

Waldemar Klassen

WALDEMAR KLASSEN
Acting Director
Beltsville Area

